Wednesday, August 03, 2005

WISPA Comments in Reply to Petition for Reconsideration in regarding 3650 Mhz (04-151)

Dear Sirs,

WISPA applauds the commission for a well thought out Report and Order. We are encouraged by the additional 50 MHz of spectrum allocated for what amounts to unlicensed use.

We also like the idea of being able to run somewhat higher power levels than under the current rules. This should be a great help for those in heavily forested or very rural settings.

After reading the Petition for Reconsideration put forth by various organizations we'd like to take this time to address some of the issues that have been raised.

First, WISPA would like to point out that almost all spectrum is licensed today. There is no shortage of licensed bands. What there does seem to be a shortage of is broadband deployments and innovation in those bands. As telecommunications providers are discovering, a single broadband deployment can often replace many service-specific deployments and is generally a more efficient means for transporting information. We believe that leaving the 3650MHz band as a non-exclusively licensed band will foster an environment of continued service and competition in places it's not formerly been.

WISPA can, however, sympathize with manufacturers' uncertainty with regard to the new rules. They are in some places, ambiguous at best. We believe that a slight adjustment could alleviate some of the market uncertainty.

We wish to stress that in NO way do we want to eliminate the contention based mechanism. After all, this rule creates an environment that's as good as having a licensed band. Implemented correctly it should provide few barriers to entry while at the same time offering some protection to existing investments.

WISPA would like to suggest the following options as possible models for addressing the manufacturers' uncertainty.

One idea that WISPA has is to break a second into some equal number of segments (maybe 3600 time slots). Each system in a given area would be required to negotiate with all others in the area for an equal number of time slots in a given channel. The emphasis

for the manufacturers would then be to build a device that would put the maximum bits through the air in the shortest time possible. This is one example of how the manufacturers' desire to have more direction could be met without opening up the market to aggressively inefficient system designs that we've seen all too often under the current rule structures.

A contention based mechanism is essential to cooperative use of overlapping space and spectrum usage, without severe interference. However, due to some lessons learned from the current unlicensed systems and how they interfere with each other, we think that it is essential that no system be allowed to use excessive airtime while not communicating payload data. That is, that no system should be allowed to use more than 5 or 10 percent of its airtime when no data is passing through the network. This is to allow "quiet time" for competing contention based systems to operate. Further, a minimum "airtime to data transferred" ratio should be imposed which should be at least as efficient as 802.11a in the 36Mbit mode. And further, no single system should be allowed to use more than 25% of the spectrum for a single sector, in a multi-sector system, or an omni-directional system, and that no point-to-point system be allowed to use more than 1/3 of the spectrum, and must have transmit power control.

We realize that WiMAX and possibly other polled radio implementations (i.e. Motorola Canopy) are seemingly incompatible with the way the proposed rule is written. Our membership seems to be divided as to their position on whether or not the rule needs to be modified to specifically permit a WiMAX-type system. However, what we definitely do not want is a set of rules which permit a single radio to consume an entire channel regardless of whether or not the radio is transmitting data. We would also like to see some sort of spectrum-density requirement (bits per Mhz). We also still like the concept of a set of rules which promote spectrum sharing in some fashion - whether this means the contention based proposal put forward initially or a set of rules modified to require a GPS-synchronized TDMA-type system like WiMAX (with appropriate technical details such that base stations transmit in a certain timeslot).

We're also worried about the lack of channel planning. What happens when an inefficient radio system bumps into a highly efficient one and keeps the “better” one from operating. When a system using 5 MHz of spectrum and a system using 25 MHz want the airspace at the same time which gets to go? Should the one using 25 MHz be able to hold 20 MHz open as unused? For this reason, suggest that the FCC mandate maximum channel sizes; 10 MHz possibly. The latest numbers we've seen show that companies are getting 6 MB/s with 1 MHz of spectrum. A 10 MHz channel would theoretically allow 60 MB/s speeds with today's technology level. Alternatively a mechanism where the smaller the channel used the more time slots the system would be allowed.

We also suggest that a very low power underlay be allowed, at least on a trial basis, in currently blocked out areas. Naturally any systems allowed to operate in those locations would have to be non-interfering. Perhaps a notice would need to be given to the primary user before the license would be awarded.

Respectfully Submitted,

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